

# NB3800-N2L-G

## Bahn-Router mit 1x 5G + 2x LTE + 5x ETH + GNSS + EN50155

Mit herausragender 5G Mobilfunktechnik für drahtlosen Internetzugang im Fahrzeug inkl. 5-Port Ethernet Switch.



### Hauptmerkmale

<b>Mobilfunk</b>	1x 5G-NR, LTE-A Pro, UMTS 2x LTE, UMTS, GSM
<b>SIM</b>	4x Mini SIM
<b>Ethernet</b>	2x Gigabit Ethernet, 3x Fast Ethernet
<b>Speisung</b>	24 VDC bis 48 VDC
<b>Ortung</b>	Multi-GNSS
<b>Betriebstemperatur</b>	-40 °C bis +70 °C, EN 50155 class OT4/ST0
<b>Software</b>	Routing, Network Services, VPN, Firewall, Link Management, Supervisor, SDK, freie Updates
<b>Konformität</b>	CE (RED), Bahn (EN50155, EN45545), ITxPT optional
<b>Modularität</b>	Erweiterungen auf Anfrage

### Produktbeschreibung

Der leistungsstarke NB3800 ist mit seiner Ausstattung, seinen Bahnzulassungen und Schnittstellen zur Bordelektronik z.B. ideal für Fahrgastinformation, Fahrkartensysteme oder auch Mining geeignet.

### Anwendungen

- Flottenmanagement
- Mining
- Passagier-Infotainment
- Fahrkartensysteme
- Videoüberwachung
- Telematik

### Spezifikation

#### Mobile / Cellular

#### Standard

1x Multimode 5G-NR, LTE-A Pro, UMTS

**5G - NR** n1, n2, n3, n5, n7, n8, n12, n13, n14, n20, n25, n26, n28, n30, n38, n40, n41, n48, n66, n71, n77, n78

**4G - LTE Advanced Pro** B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B20, B25, B26, B28, B30, B34, B38, B40, B41, B42, B43, B48, B66, B71

**3G - DC-HSPA+/UMTS** B1, B2, B4, B5, B8

**5G -NR Modes** Sub-6 FDD and TDD for global deployment

**LTE Category** Cat. 19 up to 5CA

**MIMO** 4x4 MIMO

**Antenna ports** 4, 4x RX/TX on every port

**Power Class** 23 dBm (Power Class 3) 26 dBm (Power Class 2) on B41 29 dBm (Power class 1.5) on n41, n77, n78

**Module Data rate down / up (max)** 5G NSA up to: 3.4 Gbps DL / 0.46 Gbps UL 5G SA up to: 2.5 Gbps DL / 0.90 Gbps UL 4G up to: 1.6 Gbps DL / 211 Mbps UL 3G up to: 42 DL/11 UL Mbps

**Operations Modes** 5G SA and NSA operations

**3GPP** 5G/4G Rel. 16, 3G HSPA+ Rel. 8

**Voice** -

**FCC ID** RI7FN990A28HP

**Region** Europe, Middle East and Africa (EMEA), North America (NA), Asia and Pacific (APAC)

2x Multimode LTE, UMTS, GSM for EMEA

**4G - LTE** B1, B3, B7, B8, B20, B28A

**3G - DC-HSPA+/UMTS** B1 (2100), B3 (1800), B8 (900)

**2G - GSM/GPRS/EDGE** B3 (1800), B8 (900)

**Category** LTE Cat 4

**Antenna ports** 2x2 MIMO

**Data rate down / up (max)** 150 Mbps / 50 Mbps

**Voice** CSFB, VoLTE (mit optionaler Software-Lizenz)

**FCC ID** -

**Region** Europe

Europe

8x TNC female

4x Mini SIM - 2FF

#### Region

#### Connectors

#### SIM

<b>Ethernet</b>	<b>Standard</b>	2x Gigabit Ethernet <b>Ethernet standard</b> 1000BASE-T, Auto MDIX <b>Speed</b> 10/100/1000 Mbps
	<b>Connector</b>	3x Fast Ethernet <b>Ethernet standard</b> 100BASE-TX, Auto MDIX <b>Speed</b> 10/100 Mbps 2x M12 X-coded female, 3x M12 D-coded female
<b>Positioning</b>	<b>Standard</b>	1x Multi-GNSS <b>Receiver</b> BeiDou, Galileo, GLONASS, GPS gpsOne Gen 9 <b>Antennas</b> Active or passive <b>Tracking Sensitivity</b> Up to -161 dBm <b>CEP (Circular Error Probability)</b> < 2m (CEP 50), (Open sky conditions, Horizontal) <b>Min update rate</b> 1Hz <b>Services</b> Standalone
	<b>Connector</b>	1x TNC female
<b>USB</b>	<b>Standard</b>	1x USB 2.0 Host
	<b>Connector</b>	1x Type A
<b>Serial, Fieldbus</b>	<b>Protocol</b>	1x RS-232 <b>Protocol</b> EIA-232 <b>Signals</b> TX, RX <b>Signal level</b> High > 5 VDC, low < -5 VDC <b>Bit rate</b> Up to 115 200 Bit/s
	<b>Connector</b>	1x M12 A-coded female
<b>System</b>	<b>Core</b>	1.3 GHz dual core, 1 GB RAM, 4 GB flash
	<b>Module Slots</b>	2x miniPCle (PCle + USB), 4x miniPCle (USB)
<b>Software</b>	<b>Features</b>	NetModule Router Software <b>Package</b> The standard software package includes an intuitive user interface, covering all modern routing protocols and enables efficient mass deployment. <b>General</b> Fail-safe update (FOTA), upgrade via USB, HTTP(S), (S)FTP or TFTP, remote CLI & WebGUI, RADIUS authentication, Simple Certificate Enrollment Protocol (SCEP), Hardware- und Software Watchdog <b>Remote Management</b> Manage and monitor devices with SNMP V1/V2/V3, Netmodule vendor MIB, telnet, SSH, or HTTP/HTTPS <b>Cellular Networking</b> Multi-SIM / eSIM support (optional license), multi-APN support, signal strength monitoring, dedicated bearers, CSFB/VoLTE calls (optional license) <b>Wireless LAN</b> Access Point, Client Mode, Mesh Point or Dual Modes (Mesh Access Point / Access Point - Client), WLAN Pseudo-Bridge Client Mode: Multiple Client SSID Profile, Encryption: Open, WEP, WPA1/2/3-Personal, WPA1/2/3-Enterprise. Fast Roaming: Fast BSS Transition (802.11r), PreAuthentication, Protected Management Frames (802.11w) AP Mode: Multi-SSIDs (up to 8) Encryption: Open WPA1/2/3-Personal, WPA1/2/3-Enterprise Fast Roaming: Fast BSS Transition (802.11r), PreAuthentication, DFS support Protected Management Frames (802.11w) Client Tracking, Band Steering, Hide SSID broadcasting, Isolate Clients, Accounting, Short guard Intervall Mesh Mode (802.11s): Encryption: None, SAE. Gateway announcements <b>Link Management</b> Link prioritization, link aggregation, load balancing, multipath-TCP, IP-passthrough, link supervision, <b>Services</b> DHCP Client/Server, DNS Caching Server, Email, SMS Service, NTP Client/Server, SNMP Server, DynDNS, SSH Server, SNMP Agent, HTTP/HTTPS/FTP Server, IPv6 for WAN, 802.1x over Ethernet, MQTT Broker Voice Gateway (SIP, Call Routing, Audio with optional license) Coovachilli Hotspot <b>Routing</b> Destination, policy, multipath, mobile-IP, OSPF, BGP, multicast, TCP-MSS clamping, bridging discovery protocols LLDAP, CDP, SONMP, EDP, FDP, IRDP, VRRP, STP/RSTP, VRRP, VLAN, PPPoE, VXLAN <b>VPN</b> OpenVPN, IPsec (IKEv1 and IKEv2), PPTP, GRE, L2TP, CSD dial-in, Certificate revocation service <b>Firewall</b> Stateful firewall, connection tracking, NAT, NAPT, masquerading, bridge filtering, Adress translation (based on SRC and DST ports) <b>Encryption</b> supporting password protected PKCS12 files, integrated random certificate key generator, "Let's encrypt" certificate, ECC (Certificates with Elliptic Cryptography) <b>Quality of Service</b> Diffserv, SFQ, HTB, Priority-based Queuing, Netflow (Softflow) <b>Programmability</b> SDK <b>Troubleshooting</b> Logging, Ping, Traceroute, Tcpdump, Speed-test
	<b>Licenses</b>	GNSS/GPS <b>Services</b> Server with JSON-, NMEA stream
<b>Power</b>	<b>Input Voltage</b>	24, 48 VDC <b>Nominal voltages</b> 24, 48 VDC <b>Absolute voltages</b> 24 VDC to 48 VDC (-30 % / +30 %) <b>Galvanic isolation</b> 1500 VDC <b>Standard</b> EN 50155 class S2/C1
	<b>Connector</b> <b>Consumption</b>	1x M12 A-coded male 25 W (max)
<b>Dimensions</b>	<b>W x H x D</b>	Width 167/190 mm x height 121.1 mm x depth 106.5 mm
<b>Weight</b>		1800 g

<b>Environment</b>	<b>Operating Temperature</b> <b>Ingress Protection Level</b>	-40°C to +70°C IP40
<b>MTBF</b>		150'000 h / 17.1 years, according SN29500 at environmental temperature 40 °C
<b>Certifications</b>	<b>Compliance Domain</b>	CE according to 2014/53/EU (RED), 2011/65/EU (RoHS), Railway according to EN 50155 class OT4/ST0, EN 45545 Railway
<b>Order Code</b>		NB3800-N2L-G